

US 9,915,463 B2

(12) United States Patent

Tippmann

(54) SWING SEAL FOR A RACK-AISLE FREEZING AND CHILLING SYSTEM

(71) Applicant: Tippmann Companies, LLC, Fort

Wayne, IN (US)

Inventor: Daniel J. Tippmann, Fort Wayne, IN

Tippmann Companies LLC, Fort Assignee:

Wayne, IN (US)

Subject to any disclaimer, the term of this (*) Notice:

patent is extended or adjusted under 35

U.S.C. 154(b) by 0 days.

This patent is subject to a terminal dis-

claimer.

Appl. No.: 15/444,234

Filed: Feb. 27, 2017 (22)

(65)**Prior Publication Data**

> US 2017/0167772 A1 Jun. 15, 2017

Related U.S. Application Data

- Continuation of application No. 14/550,092, filed on Nov. 21, 2014, now Pat. No. 9,618,256, which is a (Continued)
- (51) Int. Cl.

F25D 17/04 (2006.01)F25D 13/00 (2006.01)F25D 17/00 (2006.01)

(52) U.S. Cl.

CPC F25D 17/045 (2013.01); F25D 13/00 (2013.01); F25D 17/005 (2013.01); F25D 2400/30 (2013.01); F25D 2500/02 (2013.01)

(58) Field of Classification Search

CPC F25D 17/045; F25D 13/00; F25D 17/005; F25D 2500/02; F25D 2400/30

See application file for complete search history.

(45) Date of Patent: *Mar. 13, 2018

(56)References Cited

(10) Patent No.:

U.S. PATENT DOCUMENTS

206,140 A 7/1878 Rumbaugh 239,345 A 3/1881 Sanford (Continued)

FOREIGN PATENT DOCUMENTS

FR	2 871 222	12/2005
WO	2005106356	11/2005
WO	2007122334	11/2007

OTHER PUBLICATIONS

"Thermal Tech Acquires Cool Care", Thermal Tech News, vol. 5, No. 1, Spring 2002.

(Continued)

Primary Examiner — Emmanuel Duke (74) Attorney, Agent, or Firm — Faegre Baker Daniels LLP

(57)ABSTRACT

An automatically adjustable swing seal for a rack-aisle freezing and chilling system extends, for example, from the top horizontal frame member of a racking structure and defines an intake opening along with side seals and a bottom seal. The swing seal is positioned at a height such that a product stack having a top edge positioned at any point along the face of the swing seal creates a seal between the intake opening and the stack via the swing seal, the side seals, and the bottom seal. Thus, stacks of varying heights may automatically be accommodated. Further, the bottom edge of the swing seal may be beveled, such that if a product stack is not evenly stacked a portion of the uneven stacking will not catch against the swing seal when the stack is pulled away from the opening.

20 Claims, 17 Drawing Sheets

